

Chapter 3. Science and Engineering Workforce

3-1	Number, education and employment status, and median income of 1993 and 1994 bachelor's and master's degree recipients, by degree field: 1995	A-103
3-2	Employed 1993 and 1994 S&E bachelor's and master's degree recipients, by degree field and sector of employment: 1995	A-104
3-3	Employment status of scientists and engineers, by broad occupation and highest degree received: 1995	A-105
3-4	Number of employed scientists and engineers, by occupation and highest degree received: 1995	A-106
3-5	Number of employed scientists and engineers, by occupation and degree field: 1995	A-107
3-6	Employed scientists and engineers, by age group and highest degree received: 1995	A-108
3-7	Number of employed scientists and engineers, by sector of employment and broad occupation: 1995	A-109
3-8	Median annual salaries of employed scientists and engineers, by occupation and highest degree received: 1995	A-110
3-9	Median annual salaries of employed scientists and engineers, by occupation and degree field: 1995	A-111
3-10	Number of employed scientists and engineers, by occupation, sex, and race/ethnicity: 1995	A-112
3-11	Percentage distribution of employed scientists and engineers, by highest degree received, sex, and race/ethnicity: 1995	A-113
3-12	Employed scientists and engineers, by sector of employment, sex, and race/ethnicity: 1995	A-114
3-13	Median annual salaries of employed scientists and engineers, by occupation, sex, and race/ethnicity: 1995	A-115
3-14	Median annual salaries of employed scientists and engineers, by sector of employment, sex, and race/ethnicity: 1995	A-116
3-15	Scientists and engineers engaged in R&D, and per 10,000 labor force population, by country: 1979-94	A-117
3-16	Total science and engineering jobs: 1996 and projected 2006.....	A-118

Appendix table 3-1.

Number, education and employment status, and median income of 1993 and 1994 bachelor's and master's degree recipients, by degree field: 1995

Degree field	Graduates (thousands) ^a	Full-time student	Not full-time student			Median salary ^b
			Employed in S&E occupation	Employed in non-S&E occupation	Unemployed	
			Bachelor's degree recipients			
TOTAL SCIENCE & ENGINEERING	700.1	23	19	52	6	25,000
Total science	581.7	25	10	59	6	22,900
Mathematics & computer sciences	69.2	13	32	51	4	30,000
Life sciences	121.6	37	10	47	5	22,000
Physical sciences	33.2	39	27	30	4	25,000
Social sciences	357.8	21	5	67	7	21,000
Total engineering	118.4	15	62	20	4	33,500
Aerospace	4.4	25	43	29	3	30,000
Chemical	9.6	22	58	14	6	37,800
Civil & architectural	18.0	13	68	17	3	30,000
Electrical, electronics, computer & communications	38.6	12	64	21	4	35,000
Industrial	6.4	10	59	28	3	34,000
Mechanical	28.9	13	66	17	4	34,000
Other	12.5	25	50	21	3	32,000
Master's degree recipients						
TOTAL SCIENCE & ENGINEERING	146.3	24	43	28	5	39,000
Total science	99.7	26	32	36	5	35,000
Mathematics & computer sciences	24.3	14	54	28	4	43,200
Life sciences	15.0	36	30	29	5	31,200
Physical sciences	9.7	39	41	16	5	35,000
Social sciences	50.7	27	21	46	6	30,000
Total engineering	46.6	19	65	11	4	44,000
Aerospace	1.7	28	56	14	2	43,600
Chemical	1.8	25	67	5	3	44,000
Civil & architectural	6.1	13	77	7	3	39,500
Electrical, electronics, computer & communications	16.4	21	65	9	5	46,000
Industrial	3.0	9	66	23	2	44,000
Mechanical	7.4	20	67	9	3	43,00
Other	10.1	20	59	16	5	45,000

NOTES: For graduates with more than one eligible degree at the same level (bachelor's/master's), the most recent degree at that level was used. Details may not sum to totals because of rounding. Percentages were calculated on unrounded data. Education and employment status are as of April 1995.

^aIncludes people who received a bachelor's or master's degree in science or engineering from a U.S. college or university between July 1992 and June 1994.

^bSalary data are provided only for graduates who are employed full time; data for self-employed and full-time students are not included. Median salaries are rounded to the nearest hundred dollars.

SOURCE: National Science Foundation, Science Resources Studies Division, National Survey of Recent College Graduates, 1995.

Appendix table 3-2.

Employed 1993 and 1994 S&E bachelor's and master's degree recipients, by degree field and sector of employment: 1995

Degree field	Total employed (thousands)	Sector of employment (percentages) ^a					
		4-year college & university	Other educational institution	Private for-profit	Self-employed	Private not-for-profit	Federal Government
Bachelor's degree recipients							
Total science & engineering	585.6	13	9	59	2	6	4
Total science	476.7	14	10	56	3	7	4
Total engineering	108.9	11	1	75	2	1	7
Master's degree recipients							
Total science & engineering	128.4	23	9	47	2	6	7
Total science	86.0	26	12	38	2	9	5
Total engineering	42.4	17	1	66	1	1	10

NOTES: For graduates with more than one eligible degree at the same level (bachelor's/master's), the most recent degree at that level was used. Details may not sum to totals because of rounding. Percentages were calculated on unrounded data.

^aThis is the sector of employment in which the respondent was working on his or her primary job held on April 15, 1995. People working in four-year colleges and universities or university-affiliated medical schools or research organizations were classified as employed in the "four-year college and university" sector. Those working in elementary, middle, secondary, or two-year colleges or other educational institutions were categorized in the "other educational" sector. Those reporting that they were self-employed but in an incorporated business were classified in the "private for-profit" sector.

SOURCE: National Science Foundation, Science Resources Studies Division, National Survey of Recent College Graduates, 1995.

Science & Engineering Indicators – 1998

Appendix table 3-3.

Employment status of scientists and engineers, by broad occupation and highest degree received: 1995

Occupation	Total	Employed	Unemployed
All degree recipients			
All S&E occupations	3,256,200	3,185,600	70,600
Computer and math scientists	966,200	949,500	16,800
Life scientists	311,500	305,300	6,200
Physical scientists	281,800	274,300	7,500
Social scientists	321,400	317,500	3,900
Engineers	1,375,200	1,339,000	36,200
Bachelor's degree recipients			
All S&E occupations	1,883,400	1,844,000	39,400
Computer and math scientists	635,300	625,000	10,400
Life scientists	123,900	121,500	2,400
Physical scientists	131,000	128,100	2,900
Social scientists	61,600	60,600	1,000
Engineers	931,500	908,800	22,800
Master's degree recipients			
All S&E occupations	915,800	892,700	23,000
Computer and math scientists	273,600	268,000	5,600
Life scientists	65,200	64,000	1,200
Physical scientists	69,800	67,200	2,700
Social scientists	138,000	135,800	2,300
Engineers	369,100	357,900	11,300
Ph.D. degree recipients			
All S&E occupations	425,700	418,300	7,500
Computer and math scientists	54,600	53,800	800
Life scientists	104,500	102,400	2,000
Physical scientists	80,600	78,900	1,800
Social scientists	113,900	113,300	700
Engineers	72,100	69,900	2,200
Other professional degree recipients			
All S&E occupations	31,300	30,600	700
Computer and math scientists	2,700	2,700	-
Life scientists	17,900	17,400	600
Physical scientists	300	200	100
Social scientists	7,900	7,900	-
Engineers	2,500	2,500	-

- = weighted value of less than 50

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

See figure 3-3.

Science & Engineering Indicators – 1998

Appendix table 3-4.

Number of employed scientists and engineers, by occupation and highest degree received: 1995

Occupation	Total	Bachelor's degree	Master's degree	Ph.D. degree	Other professional degree
All S&E occupations	3,185,600	1,844,000	892,700	418,300	30,600
Computer and math scientists	949,500	625,000	268,000	53,800	2,700
Computer and information scientists	839,600	595,200	219,800	22,100	2,500
Mathematicians	37,900	16,300	14,000	7,600	–
Postsecondary teachers	72,000	13,500	34,200	24,100	200
Life scientists	305,300	121,500	64,000	102,400	17,400
Agricultural scientists	43,400	24,700	9,300	9,300	100
Biological scientists	168,600	69,700	32,800	57,900	8,200
Environmental life scientists	20,100	13,400	5,800	900	–
Postsecondary teachers	73,200	13,600	16,200	34,400	9,000
Physical scientists	274,300	128,100	67,200	78,900	200
Chemists, except biochemists	111,400	65,300	20,200	25,900	100
Earth scientists	70,700	36,100	24,300	10,400	–
Physicists and astronomers	29,000	7,100	7,700	14,100	–
Other physical scientists	17,000	9,300	5,100	2,600	100
Postsecondary teachers	46,200	10,300	9,900	25,900	–
Social scientists	317,500	60,600	135,800	113,300	7,900
Economists	33,100	10,900	15,100	7,000	100
Political scientists	8,900	5,100	2,600	1,200	–
Psychologists	167,200	25,400	88,700	48,200	4,900
Sociologists and anthropologists	16,000	7,800	5,200	3,000	–
S&T historians and other social scientists	12,600	3,800	4,900	3,100	900
Postsecondary teachers	79,700	7,600	19,300	50,800	2,000
Engineers	1,339,000	908,800	357,900	69,900	2,500
Aerospace engineers	72,800	42,600	25,900	4,200	100
Chemical engineers	71,100	46,100	19,200	5,800	–
Civil and architectural engineers	198,900	143,400	51,000	3,900	600
Electrical and related engineers	357,400	241,000	102,000	13,200	1,200
Industrial engineers	69,600	52,400	16,400	800	–
Mechanical engineers	255,100	191,600	55,000	8,100	300
Other engineers	282,800	186,300	79,900	16,400	200
Postsecondary teachers	31,300	5,300	8,400	17,500	–

– = weighted value of less than 50; S&T = science and technology

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

See text table 3-11.

Science & Engineering Indicators – 1998

Appendix table 3-5.

Number of employed scientists and engineers, by occupation and degree field: 1995

Occupation	All fields	Math & computer science	Life sciences	Physical sciences	Social sciences	Engineering	Non-S&E fields
All S&E occupations	3,185,600	446,500	297,200	312,900	384,400	1,193,700	550,800
Computer and math scientists	949,500	406,600	21,700	36,900	88,500	145,700	250,000
Computer and information scientists	839,600	345,300	19,100	33,200	80,500	138,000	223,600
Mathematicians	37,900	17,500	1,800	2,300	5,800	3,200	7,200
Postsecondary teachers	72,000	43,900	700	1,400	2,200	4,500	19,300
Life scientists	305,300	1,400	217,100	19,500	14,400	3,800	49,100
Agricultural scientists	43,400	300	33,300	1,600	1,700	500	6,000
Biological scientists	168,600	1,000	120,300	15,000	8,000	2,700	21,500
Environmental life scientists	20,100	—	14,100	400	1,600	100	3,800
Postsecondary teachers	73,200	100	49,400	2,400	3,100	400	17,800
Physical scientists	274,300	4,800	33,400	200,800	7,500	14,200	13,600
Chemists, except biochemists	111,400	1,100	17,700	80,900	1,100	4,600	6,100
Earth scientists	70,700	1,700	4,600	56,300	2,000	4,100	2,000
Physicists and astronomers	29,000	600	700	23,200	100	2,800	1,600
Other physical scientists	17,000	500	6,400	4,500	2,700	1,400	1,500
Postsecondary teachers	46,200	900	4,100	35,900	1,600	1,200	2,400
Social scientists	317,500	1,700	3,500	1,100	253,100	1,700	56,500
Economists	33,100	1,000	700	200	21,900	1,100	8,200
Political scientists	8,900	—	—	—	8,700	—	100
Psychologists	167,200	100	700	300	137,100	200	28,800
Sociologists and anthropologists	16,000	200	500	400	14,200	100	600
S&T historians & other social scientists ..	12,600	200	600	100	7,900	200	3,600
Postsecondary teachers	79,700	200	1,000	100	63,300	200	15,000
Engineers	1,339,000	32,000	21,500	54,600	20,900	1,028,400	181,700
Aerospace engineers	72,800	2,700	300	4,100	1,000	52,400	12,200
Chemical engineers	71,100	100	900	4,300	—	59,100	6,600
Civil and architectural engineers	198,900	1,000	800	1,800	2,500	175,300	17,500
Electrical and related engineers	357,400	14,900	2,000	12,900	4,500	274,500	48,600
Industrial engineers	69,600	2,100	1,300	3,100	4,500	40,700	18,000
Mechanical engineers	255,100	1,900	600	2,700	700	215,500	33,600
Other engineers	282,800	8,500	15,400	24,400	7,400	184,300	42,800
Postsecondary teachers	31,300	700	200	1,200	200	26,600	2,500

— = weighted value of less than 50; S&T = science and technology

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

See text table 3-12.

Science & Engineering Indicators – 1998

Appendix table 3-6.

Employed scientists and engineers, by age group and highest degree received: 1995

Age group	Total	Bachelor's degree	Master's degree	Ph.D. degree	Other professional degree
Total	3,185,600	1,844,000	892,700	418,300	30,600
Percentages					
Under 25	2.3	3.7	0.6	0.1	0.1
25-29	11.1	14.8	8.2	1.3	2.6
30-34	17.3	19.1	16.2	12.0	9.0
35-39	18.1	18.4	17.9	17.4	20.1
40-44	16.0	15.1	17.4	16.5	16.5
45-49	14.0	12.0	16.3	17.6	20.9
50-54	9.1	7.0	10.8	14.7	8.6
55-59	6.0	4.5	7.1	10.1	6.8
60-64	3.5	3.1	3.4	5.4	7.7
Over 64	2.5	2.4	2.1	5.0	7.8

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

See figure 3-4.

Science & Engineering Indicators – 1998

Appendix table 3-7.

Number of employed scientists and engineers, by sector of employment and broad occupation: 1995

Sector	Total	Computer & math scientists	Life scientists	Physical scientists	Social scientists	Engineers
All degree recipients						
Total, all sectors	3,185,600	949,500	305,300	274,300	317,500	1,339,000
Four-year college & university	291,100	41,000	84,300	51,100	71,900	42,800
Other educational institution	275,200	83,000	64,700	28,500	67,600	31,400
Private for-profit	1,970,300	683,200	75,600	138,600	57,600	1,015,300
Self-employed	113,800	23,600	7,400	6,500	42,600	33,800
Private not-for-profit	91,000	27,600	11,000	5,600	33,700	13,200
Federal Government	252,400	53,300	37,700	27,600	17,100	116,600
State & local government	191,700	37,900	24,600	16,400	27,000	85,900
Bachelor's degree recipients						
Total, all sectors	1,844,000	625,000	121,500	128,100	60,600	908,800
Four-year college & university	63,400	10,500	20,500	11,800	10,800	9,800
Other educational institution	85,900	34,700	20,000	8,700	8,400	14,200
Private for-profit	1,324,800	482,800	39,200	78,800	16,100	708,000
Self-employed	48,800	16,000	3,600	3,100	2,800	23,400
Private not-for-profit	41,100	19,500	4,300	2,200	8,700	6,300
Federal Government	150,400	35,100	17,100	12,400	5,700	80,100
State & local government	129,500	26,400	16,800	11,200	8,100	66,900
Master's degree recipients						
Total, all sectors	892,700	268,000	64,000	67,200	135,800	357,900
Four-year college & university	45,800	10,000	6,700	7,000	11,400	10,800
Other educational institution	128,800	39,900	19,900	12,800	42,000	14,200
Private for-profit	524,300	179,400	16,700	32,600	26,100	269,600
Self-employed	39,500	6,200	2,100	2,100	21,000	8,100
Private not-for-profit	31,700	6,500	2,200	1,000	16,900	5,200
Federal Government	70,800	15,400	10,600	7,400	5,600	31,800
State & local government	51,800	10,600	5,900	4,400	12,800	18,200
Ph.D. degree recipients						
Total, all sectors	418,300	53,800	102,400	78,900	113,300	69,900
Four-year college & university	181,300	20,400	56,800	32,400	49,700	22,100
Other educational institution	45,400	8,300	12,900	7,100	14,100	3,000
Private for-profit	114,600	18,700	17,800	27,200	14,900	36,000
Self-employed	23,100	1,500	1,300	1,300	16,900	2,100
Private not-for-profit	16,300	1,600	3,900	2,500	6,700	1,700
Federal Government	28,400	2,500	8,300	7,700	5,600	4,300
State & local government	9,300	900	1,600	700	5,400	700
Other professional degree recipients						
Total, all sectors	30,600	2,700	17,400	200	7,900	2,500
Four-year college & university	600	–	400	–	–	100
Other educational institution	15,100	100	11,900	–	3,100	–
Private for-profit	6,600	2,200	2,000	100	600	1,600
Self-employed	2,300	–	300	–	1,900	100
Private not-for-profit	2,000	–	700	–	1,300	–
Federal Government	2,800	300	1,700	100	300	400
State & local government	1,200	–	300	–	800	100

– = weighted value of less than 50

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

Appendix table 3-8.

**Median annual salaries of employed scientists and engineers, by occupation and highest degree received: 1995
(Dollars)**

Occupation	Total	Bachelor's degree	Master's degree	Ph.D. degree	Other professional degree
All S&E occupations	50,000	48,000	53,000	58,000	69,000
Computer and math scientists	50,000	49,000	55,000	58,000	63,000
Computer and information scientists	50,000	49,000	57,000	65,000	63,000
Mathematicians	53,000	47,700	55,200	65,000	NA
Postsecondary teachers	41,000	30,000	32,300	50,500	44,000
Life scientists	42,000	35,000	40,000	53,000	100,000
Agricultural scientists	41,000	38,800	36,000	54,000	44,000
Biological scientists	40,000	31,600	40,900	52,000	90,000
Environmental life scientists	40,000	37,000	43,000	59,000	NA
Postsecondary teachers	49,200	28,000	35,000	54,600	100,000
Physical scientists	47,000	40,000	48,000	60,000	24,000
Chemists, except biochemists	47,000	40,000	50,000	64,100	52,000
Earth scientists	45,000	40,000	49,000	62,500	NA
Physicists and astronomers	55,800	42,000	52,000	65,000	NA
Other physical scientists	43,900	37,400	48,000	63,500	24,000
Postsecondary teachers	45,000	15,000	42,000	50,000	17,000
Social scientists	43,000	27,000	39,000	53,000	49,000
Economists	53,500	42,000	59,900	77,000	120,000
Political scientists	33,000	27,200	35,000	61,000	NA
Psychologists	40,000	22,000	37,000	55,000	49,000
Sociologists and anthropologists	32,000	27,000	32,000	50,000	NA
S&T historians and other social scientists	40,000	27,000	39,300	53,700	48,500
Postsecondary teachers	47,000	25,200	36,000	50,000	48,000
Engineers	54,000	50,000	59,000	65,000	50,000
Aerospace engineers	58,000	55,000	60,000	70,000	22,000
Chemical engineers	60,000	55,000	63,000	70,000	NA
Civil and architectural engineers	50,000	48,000	55,000	60,000	50,000
Electrical and related engineers	56,000	52,800	62,000	70,300	53,000
Industrial engineers	50,000	48,000	51,600	66,250	NA
Mechanical engineers	52,000	50,000	56,000	62,000	50,000
Other engineers	53,000	50,000	60,000	65,000	150,000
Postsecondary teachers	54,000	40,000	42,000	60,000	48,000

NA = not available; S&T = science and technology

NOTE: Median annual salaries are for full-time employees only.

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

See figure 3-5.

Science & Engineering Indicators – 1998

Appendix table 3-9.

Median annual salaries of employed scientists and engineers, by occupation and degree field: 1995
(Dollars)

Occupation	All fields	Math & computer sciences	Life sciences	Physical sciences	Social sciences	Engineering	Non-S&E fields
All S&E occupations	50,000	50,000	41,000	50,000	45,000	53,500	50,000
Computer & math scientists	50,000	50,000	45,000	55,000	48,500	54,800	49,000
Computer & information scientists	50,000	50,500	45,000	55,000	48,500	54,000	50,000
Mathematicians	53,000	55,000	52,000	55,000	50,000	60,000	49,700
Postsecondary teachers	41,000	42,000	51,500	47,400	35,000	51,000	34,000
Life scientists	42,000	50,000	40,500	40,000	42,000	35,000	48,000
Agricultural scientists	41,000	50,000	40,000	68,000	42,000	37,500	43,000
Biological scientists	40,000	48,700	39,000	37,500	37,000	31,300	45,000
Environmental life scientists	40,000	NA	38,900	45,000	44,500	10,000	37,000
Postsecondary teachers	49,200	60,000	46,800	51,400	48,900	64,000	63,900
Physical scientists	47,000	45,000	37,500	49,200	47,000	48,000	40,000
Chemists, except biochemists	47,000	34,000	35,500	50,000	74,000	44,000	43,000
Earth scientists	45,000	52,000	40,000	47,500	40,000	50,000	38,600
Physicists & astronomers	55,800	58,000	110,000	57,000	52,500	48,000	52,000
Other physical scientists	43,900	39,600	37,400	51,300	47,000	55,800	37,000
Postsecondary teachers	45,000	57,300	34,900	48,000	67,000	43,000	39,000
Social scientists	43,000	41,000	48,200	46,000	42,000	60,000	45,000
Economists	53,500	45,000	60,000	46,000	55,000	67,000	49,300
Political scientists	33,000	NA	28,000	46,000	32,500	NA	40,000
Psychologists	40,000	51,000	30,000	15,500	40,000	NA	40,000
Sociologists & anthropologists	32,000	NA	50,000	50,000	31,700	NA	24,800
S&T historians & other social scientists ..	40,000	20,000	26,500	53,200	39,300	34,000	46,000
Postsecondary teachers	47,000	80,000	48,200	75,000	46,200	40,000	48,000
Engineers	54,000	54,000	48,500	55,500	47,000	53,500	55,000
Aerospace engineers	58,000	62,900	64,000	67,000	70,000	57,000	58,000
Chemical engineers	60,000	58,000	50,000	59,000	41,000	60,000	65,000
Civil & architectural engineers	50,000	60,000	48,500	48,000	43,000	50,000	55,000
Electrical & related engineers	56,000	53,400	50,000	58,000	65,000	55,900	58,000
Industrial engineers	50,000	51,700	60,000	52,000	47,000	48,400	50,000
Mechanical engineers	52,000	50,000	52,000	53,000	48,000	52,000	54,000
Other engineers	53,000	53,900	45,000	55,000	43,500	53,000	55,000
Postsecondary teachers	54,000	60,000	66,100	63,000	53,500	54,000	42,000

NA = not available; S&T = science and technology

NOTE: Median annual salaries are for full-time employees only.

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

Appendix table 3-10.
Number of employed scientists and engineers, by occupation, sex, and race/ethnicity: 1995

Occupation	Total	Male	Female	White	Black	Hispanic	Asian/Pacific Islander	Native American
All S&E occupations	3,185,600	2,472,100	713,500	2,673,700	107,500	90,100	304,600	8,000
Computer and math scientists	949,500	674,500	275,000	784,900	39,300	22,800	100,200	1,600
Computer and information scientists	839,600	602,700	236,900	694,100	33,100	20,500	90,400	1,200
Mathematicians	37,900	25,300	12,500	31,600	2,500	600	2,700	100
Postsecondary teachers	72,000	46,500	25,500	59,200	3,600	1,700	7,100	300
Life scientists	305,300	199,400	105,900	257,200	9,700	8,500	29,000	700
Agricultural scientists	43,400	32,300	11,100	37,800	1,500	1,600	2,400	-
Biological scientists	168,600	100,700	67,900	137,100	4,800	4,700	21,500	400
Environmental life scientists	20,100	17,400	2,700	19,500	100	300	-	100
Postsecondary teachers	73,200	49,100	24,100	62,900	3,300	1,900	5,100	100
Physical scientists	274,300	215,200	59,100	232,600	7,800	6,800	26,200	800
Chemists, except biochemists	111,400	82,500	29,000	88,800	5,400	2,300	14,600	400
Earth scientists	70,700	58,100	12,600	64,100	700	2,100	3,500	300
Physicists and astronomers	29,000	25,700	3,300	24,900	300	400	3,300	-
Other physical scientists	17,000	12,400	4,600	15,200	300	600	900	-
Postsecondary teachers	46,200	36,600	9,600	39,600	1,100	1,400	4,000	100
Social scientists	317,500	159,000	158,500	277,900	16,500	9,800	11,800	1,500
Economists	33,100	23,900	9,200	28,200	1,200	1,600	1,900	100
Political scientists	8,900	4,900	4,000	7,200	300	600	800	-
Psychologists	167,200	65,700	101,600	150,200	8,400	4,600	3,100	900
Sociologists and anthropologists	16,000	8,400	7,700	14,600	600	200	600	100
S&T historians and other social scientists	12,600	6,300	6,300	10,600	1,100	300	500	-
Postsecondary teachers	79,700	49,900	29,800	67,200	4,900	2,400	4,700	400
Engineers	1,339,000	1,224,000	115,000	1,121,000	34,200	42,200	137,300	3,400
Aerospace engineers	72,800	68,300	4,500	61,900	1,700	3,000	5,800	300
Chemical engineers	71,100	62,200	8,900	58,600	2,200	2,400	7,900	-
Civil and architectural engineers	198,900	180,900	18,000	164,600	3,600	7,300	22,900	400
Electrical and related engineers	357,400	335,200	22,300	285,400	11,500	12,900	46,700	900
Industrial engineers	69,600	60,600	9,000	60,300	3,100	2,100	3,700	400
Mechanical engineers	255,100	240,300	14,800	218,700	5,600	6,800	22,500	800
Other engineers	282,800	247,500	35,300	248,000	5,600	6,500	22,100	600
Postsecondary teachers	31,300	28,900	2,400	23,500	900	1,100	5,700	100

- = weighted value of less than 50; S&T = science and technology

NOTE: Total includes 1,700 persons whose race/ethnicity category was reported as "other."

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

See figure 3-6 and text table 3-14.

Science & Engineering Indicators - 1998

Appendix table 3-11.
Percentage distribution of employed scientists and engineers, by highest degree received, sex, and race/ethnicity: 1995

Occupation	Total	Male	Female	White	Black	Hispanic	Asian/Pacific Islander	Native American
All S&E occupations (total number)								
Computer and math scientists								
Computer and math scientists	3,185,600	2,472,100	713,500	2,673,700	29.4	107,500	90,100	304,600
Life scientists	29.8	27.3	38.5	9.6	9.0	36.6	25.3	32.9
Physical scientists	9.6	8.1	14.8	8.6	8.3	9.6	9.4	9.5
Social scientists	8.6	8.7	8.3	7.3	8.7	7.3	7.5	8.6
Engineers	10.0	6.4	22.2	10.4	16.1	15.3	10.9	3.9
Engineers	42.0	49.5	41.9	41.9	31.8	46.8	45.1	42.5
All degree recipients								
Bachelor's degree recipients								
Computer and math scientists								
Computer and math scientists	1,844,000	1,465,700	378,300	1,585,200	33.5	70,400	54,900	127,600
Life scientists	33.9	29.9	49.5	5.1	12.3	6.7	6.1	31.2
Physical scientists	6.6	6.4	8.9	6.9	7.0	7.6	7.7	5.2
Social scientists	6.9	2.0	8.3	3.1	3.1	8.2	5.5	5.9
Engineers	3.3	56.6	21.1	56.6	49.6	37.4	3.7	2.0
Engineers	49.3	49.3	49.3	49.3	49.3	49.3	51.9	50.6
Master's degree recipients								
Computer and math scientists								
Computer and math scientists	892,700	660,300	232,400	725,600	25,800	24,000	24,000	115,100
Life scientists	30.0	28.8	33.5	28.9	7.4	35.7	18.3	38.4
Physical scientists	7.2	5.5	12.0	6.9	7.7	9.8	4.8	5.5
Social scientists	7.5	7.8	6.9	34.5	16.7	3.9	9.3	9.6
Engineers	15.2	8.4	13.1	49.6	39.3	23.8	18.6	3.3
Engineers	40.1	40.1	40.1	40.1	40.1	40.1	49.0	24.5
Ph.D. degree recipients								
Other professional degree recipients								
All S&E occupations (total number)								
Computer and math scientists								
Computer and math scientists	418,300	324,500	93,800	337,300	9,500	10,200	59,700	1,400
Life scientists	12.9	13.6	10.3	12.3	11.8	13.1	16.0	11.8
Physical scientists	24.5	23.2	28.8	24.7	19.8	24.8	24.1	16.1
Social scientists	18.9	21.4	10.1	19.1	14.4	15.5	18.7	10.8
Engineers	27.1	21.7	45.6	29.6	43.4	29.9	9.0	50.9
Engineers	16.7	20.0	5.2	14.2	10.6	16.8	32.1	10.4
Other professional degree recipients								
All S&E occupations (total number)								
Computer and math scientists								
Computer and math scientists	30,600	21,600	9,100	25,500	1,800	1,100	2,200	100
Life scientists	8.8	11.2	3.1	8.3	16.7	—	13.0	—
Physical scientists	56.7	60.0	49.0	54.9	58.3	58.2	76.2	54.2
Social scientists	0.6	0.9	—	0.7	—	—	0.6	—
Engineers	26.0	16.9	46.8	28.0	25.0	21.9	1.5	45.8
Engineers	8.1	11.0	1.1	8.1	—	19.9	8.7	—

= weighted value of less than 50

NOTE: Total includes 1,700 persons whose race/ethnicity category was reported as "other."

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

Appendix table 3-12.
Employed scientists and engineers, by sector of employment, sex, and race/ethnicity: 1995

Sector	Total	Male	Female	White	Black	Hispanic	Asian/Pacific Islander	Native American
Number								
Total, all sectors	3,185,600	2,472,100	713,500	2,673,700	107,500	90,100	304,600	8,000
Four-year college & university	291,100	210,700	80,400	234,100	9,000	9,300	37,800	900
Other educational institution	275,200	167,000	108,200	228,900	15,400	8,800	21,500	500
Private for-profit	1,970,300	1,614,400	355,900	1,663,000	54,800	51,700	195,900	4,300
Self-employed	113,800	77,500	36,300	106,100	1,200	1,800	4,300	400
Private not-for-profit	91,000	52,900	38,100	76,800	3,600	3,000	7,100	500
Federal Government	252,400	204,900	47,500	210,800	13,700	8,800	17,800	1,100
State & local government	191,700	144,700	47,000	154,000	9,800	6,700	20,100	400
Percentage distribution								
Total, all sectors	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Four-year college & university	9.1	8.5	11.3	8.8	8.4	10.3	12.4	11.6
Other educational institution	8.6	6.8	15.2	8.6	14.3	9.7	7.1	6.8
Private for-profit	61.8	65.3	49.9	62.2	51.0	57.4	64.3	53.2
Self-employed	3.6	3.1	5.1	4.0	1.1	2.0	1.4	4.4
Private not-for-profit	2.9	2.1	5.3	2.9	3.4	3.4	2.3	5.7
Federal Government	7.9	8.3	6.7	7.9	12.8	9.8	5.9	13.2
State & local government	6.0	5.9	6.6	5.8	9.1	7.5	6.6	5.1

NOTE: Total includes 1,700 persons whose race/ethnicity category was reported as "other."

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

See figure 3-7.

Science & Engineering Indicators - 1998

Appendix table 3-13.
Median annual salaries of employed scientists and engineers, by occupation, sex, and race/ethnicity: 1995
(Dollars)

Occupation	Total	Male	Female	White	Black	Hispanic	Asian/Pacific Islander	Native American
All S&E occupations	50,000	52,000	42,000	50,400	45,000	47,000	50,000	48,000
Computer and math scientists	50,000	52,000	45,000	50,200	44,000	46,000	50,000	42,900
Computer and information scientists	50,000	52,600	46,100	51,000	45,000	46,500	50,000	48,000
Mathematicians	53,000	55,000	47,700	53,000	50,000	40,000	54,300	42,300
Postsecondary teachers	41,000	45,000	30,000	40,400	39,000	44,000	43,000	42,900
Life scientists	42,000	45,000	34,600	42,600	35,000	37,000	37,000	40,000
Agricultural scientists	41,000	43,000	33,000	42,000	39,000	33,000	40,000	36,000
Biological scientists	40,000	44,000	34,000	40,000	32,000	35,000	36,000	36,900
Environmental life scientists	40,000	41,000	24,000	40,000	45,000	41,000	24,500	54,100
Postsecondary teachers	49,200	53,000	38,000	50,000	35,000	40,000	43,000	75,000
Physical scientists	47,000	50,000	39,600	48,000	42,000	40,000	45,000	32,000
Chemists, except biochemists	47,000	50,000	38,000	48,000	44,000	45,000	44,600	32,000
Earth scientists	45,000	47,500	40,000	46,000	42,000	38,000	40,000	28,500
Physicists and astronomers	55,800	58,000	50,000	58,000	45,000	22,000	47,000	79,500
Other physical scientists	43,900	45,500	43,000	43,900	30,000	30,000	53,000	29,500
Postsecondary teachers	45,000	49,000	35,000	46,000	37,000	45,000	48,000	46,200
Social scientists	43,000	48,000	37,000	43,300	35,000	40,000	45,000	37,000
Economists	53,500	55,500	50,000	52,000	60,000	67,000	60,000	48,000
Political scientists	33,000	34,500	27,200	33,000	20,000	35,000	28,000	NA
Psychologists	40,000	47,000	35,000	40,000	32,000	35,000	32,000	32,000
Sociologists and anthropologists	32,000	38,500	30,000	36,000	32,000	28,500	26,000	12,000
S&T historians and other social scientists	40,000	40,000	42,000	41,500	30,000	32,000	48,000	29,000
Postsecondary teachers	47,000	50,000	40,000	47,800	40,000	42,800	48,000	42,000
Engineers	54,000	55,000	47,000	54,000	48,600	50,000	52,000	53,000
Aerospace engineers	58,000	59,500	49,000	59,000	50,100	50,000	58,000	58,000
Chemical engineers	60,000	60,200	49,700	60,000	60,000	53,000	60,000	41,000
Civil and architectural engineers	50,000	50,000	43,000	50,000	44,000	48,000	51,000	50,000
Electrical and related engineers	56,000	57,000	47,100	57,500	48,000	53,000	52,000	48,000
Industrial engineers	50,000	50,000	45,800	50,000	48,000	45,000	48,000	54,000
Mechanical engineers	52,000	52,500	47,500	52,000	49,000	50,000	52,000	48,000
Other engineers	53,000	54,000	47,000	54,000	48,800	45,000	50,000	50,000
Postsecondary teachers	54,000	55,000	44,300	54,100	53,300	45,000	54,000	60,000

NA = not available; S&T = science and technology

NOTE: Median annual salaries are for full-time employees only.

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates.

See figures 3-8 and 3-9.

Appendix table 3-14.
Median annual salaries of employed scientists and engineers, by sector of employment, sex, and race/ethnicity: 1995

Sector	Total	Male	Female	White	Black	Hispanic	Asian/Pacific Islander	Native American
Total, all sectors	50,000	52,000	42,000	50,400	45,000	47,000	50,000	48,000
Four-year college & university	44,000	48,000	33,600	45,000	40,000	38,500	38,000	46,200
Other educational institution	41,000	44,000	35,500	42,000	34,000	40,000	38,000	37,000
Private for-profit	53,000	55,000	46,000	54,000	47,000	50,000	52,000	48,000
Self-employed	53,500	55,000	50,000	54,000	100,000	32,000	50,000	50,000
Private not-for-profit	41,300	49,000	32,000	42,000	26,000	35,000	46,000	25,200
Federal Government	52,000	53,000	47,000	52,000	50,000	51,000	51,300	50,000
State & local government	44,000	45,000	37,000	44,000	38,000	42,000	46,700	32,000

NOTE: Median annual salaries are for full-time employees only.

SOURCE: National Science Foundation, Science Resources Studies Division, 1995 SESTAT (Scientists and Engineers Statistics Data System) Surveys of Science and Engineering College Graduates, *Science & Engineering Indicators - 1998*

Appendix table 3-15.

Scientists and engineers engaged in R&D, and per 10,000 labor force population, by country: 1979-94

	United States	Japan	Germany ^a	France	United Kingdom	Italy	Canada
Total engaged in R&D (thousands)							
1979	614.5	291.2	116.9	72.9	NA	46.4	NA
1980	651.1	303.2	120.7	74.9	NA	47.0	NA
1981	683.2	311.0	124.7	85.5	127.0	52.1	40.5
1982	711.8	321.0	NA	90.1	128.0	56.7	44.1
1983	751.6	347.4	130.8	92.7	127.0	63.0	45.6
1984	NA	357.4	NA	98.2	129.0	62.0	48.7
1985	801.9	380.3	143.6	102.3	131.0	63.8	52.5
1986	NA	393.0	NA	105.0	134.0	67.8	56.0
1987	877.8	415.6	165.6	109.4	134.0	70.6	58.3
1988	NA	434.6	NA	115.2	137.0	74.8	60.6
1989	924.2	457.5	176.4	120.4	133.0	76.1	62.0
1990	NA	477.9	NA	123.9	133.0	77.9	65.8
1991	960.4	491.1	241.9	129.8	131.0	75.2	65.2
1992	NA	511.4	234.3	141.7	134.0	74.4	73.1
1993	962.7	526.5	229.8	145.9	140.0	74.4	76.6
1994	NA	541.0	NA	149.2	146.0	75.7	NA
Per 10,000 labor force							
1979	57.7	51.3	43.4	31.4	NA	20.8	NA
1980	60.0	53.1	44.3	32.1	NA	20.8	NA
1981	61.9	54.5	44.0	36.3	47.5	22.9	33.8
1982	63.6	55.6	NA	37.9	48.0	24.9	36.8
1983	66.4	59.0	45.7	39.1	47.7	27.3	37.4
1984	NA	60.3	NA	41.1	47.3	26.6	39.3
1985	68.4	63.9	49.7	42.8	47.3	27.1	41.7
1986	NA	65.3	NA	43.7	48.2	28.4	43.7
1987	72.2	68.8	56.4	45.4	47.9	29.4	44.6
1988	NA	70.5	NA	47.6	48.5	30.9	45.4
1989	73.6	73.0	59.2	49.6	46.8	31.4	45.6
1990	NA	74.9	NA	49.9	46.7	31.8	46.4
1991	75.7	75.5	61.5	51.8	46.3	30.6	47.1
1992	NA	77.7	59.3	56.4	46.9	30.2	50.2
1993	74.3	79.6	58.0	57.9	49.2	32.6	52.0
1994	NA	81.4	NA	58.8	51.3	33.3	NA

NA = not available

^aGerman data are for West Germany only before 1989.

SOURCE: Organisation for Economic Co-operation and Development, Main Statistics database (Paris: 1997).

See figure 3-13.

Appendix table 3-16.

Total science and engineering jobs: 1996 and projected 2006
(Thousands)

Occupation	1996	2006	Change
TOTAL, ALL OCCUPATIONS	132,353	150,927	18,574
ALL S&E OCCUPATIONS	3,060	4,421	1,361
Scientists	1,678	2,789	1,111
Life scientists	180	221	41
Agricultural and food	24	29	5
Biological	83	103	20
Foresters and conservation	37	43	6
Medical	35	44	9
All other	1	1	0
Computer, mathematical, and operations research	1,028	2,038	1,010
Actuaries	16	16	0
Computer systems analysts, engineers and scientists	933	1,937	1,004
Computer engineers and scientists	427	912	485
Computer engineers	216	451	235
Database administrators, computer support specialists, other	212	461	249
Systems analysts	506	1,025	519
Statisticians	14	14	0
Mathematicians	16	17	1
Operations research analysts	50	54	4
Physical scientists	207	242	35
Chemists	91	108	17
Geologists	47	54	7
Meteorologists	7	8	1
Physicists and astronomers	18	17	-1
All other	43	55	12
Social scientists	263	288	25
Economists	51	60	9
Psychologists	143	154	11
Urban and regional planners	29	31	2
All other	41	43	2
Engineers	1,382	1,632	250
Aeronautical and astronautical	53	57	4
Chemical	49	57	8
Civil	196	231	35
Electrical and electronics	367	472	105
Industrial	115	131	16
Mechanical	228	264	36
Metallurgists	18	20	2
Mining	3	3	0
Nuclear	14	14	0
Petroleum	13	11	-2
All other	326	373	47

SOURCE: U.S. Bureau of Labor Statistics, Office of Employment Projections, "National Industry-Occupation Employment Projections 1996-2006" (Washington, DC: U.S. Department of Labor, 1997).

See figure 3-15.

Science & Engineering Indicators – 1998